

# Graphs of Related Functions

2002 P1	<p>7. (a) Express <math>f(x) = x^2 - 4x + 5</math> in the form <math>f(x) = (x - a)^2 + b</math>. <span style="float: right;">2</span></p> <p>(b) On the same diagram sketch:</p> <p>(i) the graph of <math>y = f(x)</math>;</p> <p>(ii) the graph of <math>y = 10 - f(x)</math>. <span style="float: right;">4</span></p> <p>(c) Find the range of values of <math>x</math> for which <math>10 - f(x)</math> is positive. <span style="float: right;">1</span></p>
2003 P2	<p>5. The diagram shows the graph of a function <math>f</math>.</p> <p><math>f</math> has a minimum turning point at <math>(0, -3)</math> and a point of inflexion at <math>(-4, 2)</math>.</p> <p>(a) Sketch the graph of <math>y = f(-x)</math>.</p> <p>(b) On the same diagram, sketch the graph of <math>y = 2f(-x)</math>.</p> <div data-bbox="863 450 1358 831"> </div> <div style="text-align: right;">2 2</div>
2004 P1	<p>4. The diagram shows the graph of <math>y = g(x)</math>.</p> <p>(a) Sketch the graph of <math>y = -g(x)</math>.</p> <p>(b) On the same diagram, sketch the graph of <math>y = 3 - g(x)</math>.</p> <div data-bbox="847 875 1342 1234"> </div> <div style="text-align: right;">2 2</div>
2006 P2	<p>7. The diagram shows the graph of a function <math>y = f(x)</math>.</p> <p>Copy the diagram and on it sketch the graphs of:</p> <p>(a) <math>y = f(x - 4)</math>;</p> <p>(b) <math>y = 2 + f(x - 4)</math>.</p> <div data-bbox="711 1357 1334 1671"> </div> <div style="text-align: right;">2 2</div>
2009 P1	<p>23. The diagram shows a sketch of the function <math>y = f(x)</math>.</p> <p>(a) Copy the diagram and on it sketch the graph of <math>y = f(2x)</math>.</p> <p>(b) On a separate diagram sketch the graph of <math>y = 1 - f(2x)</math>.</p> <div data-bbox="951 1771 1278 2040"> </div> <div style="text-align: right;">2 3</div>

Pre 2000 Questions - Graphs of Related Functions

1	<p>Part of the graph of <math>y = f(x)</math> is shown in the diagram.</p> <p>On separate diagrams sketch the graphs of</p> <p>(i) <math>y = f(x-1)</math></p> <p>(ii) <math>y = -f(x) - 2</math></p> <p>indicating on each graph the images of A, B, C and D.</p> <div data-bbox="847 181 1286 568"> </div>	5
2	<p>The diagram shows the graph of <math>y = f(x)</math>.</p> <p>Sketch the graph of <math>y = 2 - f(x)</math>.</p> <div data-bbox="767 618 1171 958"> </div>	3
3	<p>Part of the graph of <math>y = f(x)</math> is shown in the diagram.</p> <p>On separate diagrams sketch the graphs of</p> <p>(a) <math>y = f(x+1)</math></p> <p>(b) <math>y = -2f(x)</math>.</p> <p>Indicate on each graph the images of O, A, B, C and D.</p> <div data-bbox="842 992 1326 1379"> </div>	2, 3
4	<p>The diagram shows a rough sketch of the curves <math>y = f(x)</math>, <math>y = g(x)</math> and <math>y = h(x)</math>.</p> <p>The coordinates are A(-4, 12), B(-2, 0), C(-1, -3), D(1, 3), E(2, 0) and F(4, 12).</p> <p>State the range of values of <math>x</math> for which</p> <p>(a) <math>f(x) \leq g(x)</math>;</p> <p>(b) <math>h(x) &lt; g(x) &lt; f(x)</math>.</p> <div data-bbox="818 1503 1254 1794"> </div>	1 3

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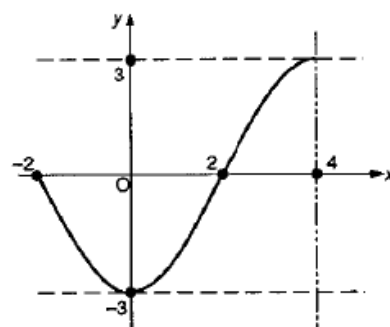
The sketch shows the graph of  $y = f(x)$  for  $-2 \leq x \leq 4$ .

The function  $g(x)$  has the line  $x = 4$  as an axis of symmetry and  $g(x) = f(x)$  for  $-2 \leq x \leq 4$ .

On separate sketches indicate

(a)  $y = g(x)$  for  $-2 \leq x \leq 10$

(b)  $y = -2g(x)$  for  $0 \leq x \leq 8$



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